

**QA/QC Checklist**

**PENNSTATE**



Construction Services

**DIVISION 33 – Utilities**  
**33 62 00 – Chilled Water Service**

General Information	Programming/Design	Bidding/Preconstruction	Installation/Construction	Closeout/Warranty
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**01 General**

1. PSU's chilled water orientation convention at UP is: Supply lines are located on the North & East sides; return lines are located on the South & West sides.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Supply and return lines should be verified. Supply pressure should be higher than the return pressure. Contact Jim Hosgood ( <a href="mailto:jkh12@psu.edu">jkh12@psu.edu</a> , (814) 777-6187), OPP Water Services Supervisor, to arrange for pressure test. After the pressure test, the underground valves should be closed (by Utility Services). The underground valves will be opened (by Utility Services) after the building loop/system is accepted by the University.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Service pipe shall be ductile iron cement lined (DACL) with EBBA Iron, Inc. Megalug type restraint devices for mechanical joint fittings.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Outside chilled water valve boxes should be labeled "Chilled Water" NOT "Water".	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Verify that chilled water lines are insulated inside the building. The commissioning agent should look at chilled water piping prior to insulating to verify proper installation in conformance to specifications..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Chilled water lines that pass within 5' of steam/condensate lines, steam tunnels, or any source of heat and/or steam tunnels, chilled water lines shall be insulated with 2' thick minimum, cellular glass, foam insulation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. On initial fill, the new piping system shall be filled with untreated water (potable domestic water). The contractor shall ensure that all air is removed. All treatment is done by the University.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. The new piping system must be cleaned and flushed by the contractor at the direction and oversight of the University. Contact Mark Gephart ( <a href="mailto:mpg4@psu.edu">mpg4@psu.edu</a> , (814) 777-5070), Lead Water Analyst, to arrange for oversight and treatment.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**02 Valves**

1. High performance butterfly valves should be used inside of buildings on chilled water mains. These valves have bolts/screws holding the valve seat and disc in place. OPP prefers to use high performance butterfly valves throughout a building; at a minimum, the last valve leaving the mechanical room should be of this type.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Contractors may not be able to obtain the required steel certificates on the high performance butterfly valve because there are currently none made in the US.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 03 Meters

<p>1. Contact Glenn Lelko (<a href="mailto:gal8@psu.edu">gal8@psu.edu</a>; (814) 360-9559), Senior Mechanical Engineer, at the beginning of a project where chilled water is going to be connected to a building. Glenn will size and order the meter (30 day lead time). The project will pay for the meter. The contractor will install the meter.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>2. Meters should be installed with 5 pipe diameters (METER connector size, not adjoining PIPE size) of straight pipe upstream and 2 pipe diameters (METER connector size, not adjoining PIPE size) of straight pipe downstream of the meter.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>